

## **Amendments to the Claims**

This Listing of Claims replaces all prior versions, and listings, of claims in the present application.

### **Listing of Claims:**

1. (previously presented) An exhaust manifold comprising a slip cast ceramic inner layer having an inner wall surface defining an exhaust gas passageway of said manifold, a ceramic insulation layer disposed exterior to and adjacent said inner layer, an outer structural layer disposed exterior to said insulation layer, and a strain isolation layer disposed between said insulation layer and said outer structural layer, said strain isolation layer comprising an intumescent mat that expands on heating and is effective to dampen unmatched thermal expansion between said outer structural layer and said insulation layer.

2. (original) An exhaust manifold according to claim 1, said ceramic insulation layer comprising ceramic fibers and ceramic filler material.

3. (original) An exhaust manifold according to claim 1, said ceramic inner layer comprising fused silica.

4. (original) An exhaust manifold according to claim 1, said ceramic inner layer being slip cast from a slip composition comprising at least 60 weight percent colloidal fused silica particles.

5. (original) An exhaust manifold according to claim 1, said ceramic inner layer comprising a major amount of fused silica.

6. (original) An exhaust manifold according to claim 1, said ceramic inner layer being slip cast from a slip composition comprising fused silica and no more than 5 weight percent fibers.

7. (original) An exhaust manifold according to claim 1, said ceramic inner layer being made from a ceramic material having a highly amorphous structure, able to withstand thermal cycling from 25°C up to 800°C and back down to 25°C without cracking.

8. (original) An exhaust manifold according to claim 1, wherein said inner layer is 0.05-5 mm thick.

9. (original) An exhaust manifold according to claim 1, wherein said outer structural layer is made from aluminum.

Claims 10-12: (canceled)

13. (previously presented) An exhaust manifold according to claim [[12]] 1, said expandable material being vermiculate, perlite or a combination thereof

14. (previously presented) An exhaust manifold according to claim [[12]] 1, said expandable material being in the form of embedded particles of vermiculite, perlite, or a combination thereof, dispersed throughout the intumescent mat.

15. (previously presented) An exhaust manifold according to claim [[11]] 1, said intumescent mat comprising, by weight, 20-60 percent ceramic fibers, 35-75 percent expandable material, balance ceramic filler and/or binder material, wherein the expandable material is vermiculate, perlite or a combination thereof.

16. (previously presented) An exhaust manifold according to claim [[11]] 1, said intumescent mat being contractible on cooling thereof after having been heat-expanded.

17. (original) An exhaust manifold according to claim 1, said manifold being water cooled.

Claims 18-19: (canceled)

20. (previously presented) An exhaust manifold according to claim [[18]] 1, said inner wall surface having a surface grain roughness less than 100  $\mu\text{m}$ .

21. (previously presented) An exhaust manifold according to claim [[18]] 1, said inner wall surface having a surface grain roughness less than 10  $\mu\text{m}$ .

Claims 22-26: (canceled)

27. (original) An exhaust manifold according to claim 1, further comprising a catalyst support body disposed within said exhaust gas passageway of said manifold, said catalyst support body having a catalyst material disposed on a surface thereof

28. (original) An exhaust manifold according to claim 27, said catalyst material being selected from the group consisting of: a) palladium-containing catalyst materials; b) platinum-containing catalyst materials; c) perovskite catalysts having the form  $\text{ABO}_x$  where A is a rare earth element or an alkaline earth element, and B is a transition metal element; and d) fluorite catalysts having the form  $\text{ABO}_x$  where A is a rare earth element and B is Ce or Zr.

29. (original) An exhaust manifold according to claim 1, said ceramic inner layer comprising a catalyst effective to convert at least a portion of CO and  $\text{NO}_x$  in an exhaust gas flowing through said exhaust gas passageway to  $\text{CO}_2$  and  $\text{N}_2$  and  $\text{O}_2$  respectively.

Claims 30-31: (canceled)

32. (previously presented) An exhaust manifold comprising a ceramic inner layer defining an exhaust gas passageway of said manifold, a ceramic insulation layer disposed exterior to said ceramic inner layer, a strain isolation layer disposed exterior to said ceramic

insulation layer, and an outer structural layer disposed exterior to said strain isolation layer, said strain isolation layer comprising an intumescent mat that expands on heating and is effective to dampen unmatched thermal expansion between said outer structural layer and said insulation layer, said ceramic inner layer being made from a material that is highly resistant to thermal shock from thermal cycling of said manifold between ambient temperature and 500°C.

Claims 33-37: (canceled)